

## **ABSTRACT**

1        A system for nano-imprint with mold deformation detector is disclosed for real-  
2   time monitoring of the deformation of the mold. An electrostatic plate capacitor is  
3   embedded in the mold, serving as the deformation detector. The capacitor includes two  
4   opposite metal film electrodes formed by silicon micromachining technique on opposite  
5   surfaces of the mold and connected by a metal lead. During imprinting, the mold is acted  
6   upon by an external force and deformation occurs, which induces change of distance  
7   between the metal film electrodes and thus variation of the capacitance of the capacitor.  
8   The amount of deformation of the mold can then be assessed by comparing the  
9   capacitance with a reference. Thus, real-time detection and monitoring of the  
10   deformation of the nano-imprint mold is realized. Also disclosed is a method for carrying  
11   out the real-time monitoring of the deformation of the mold.